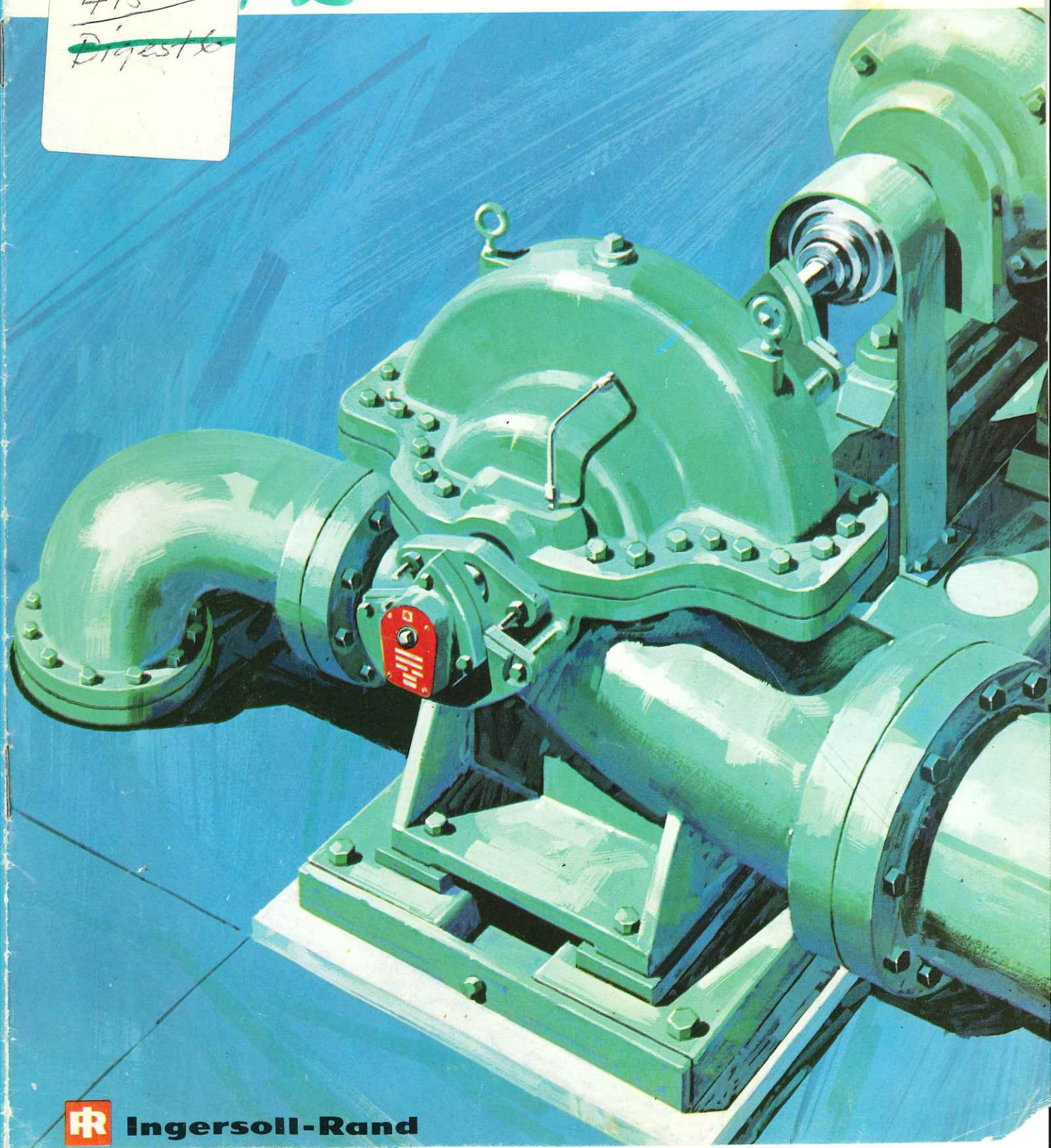
103/103 publication

# Centurion®

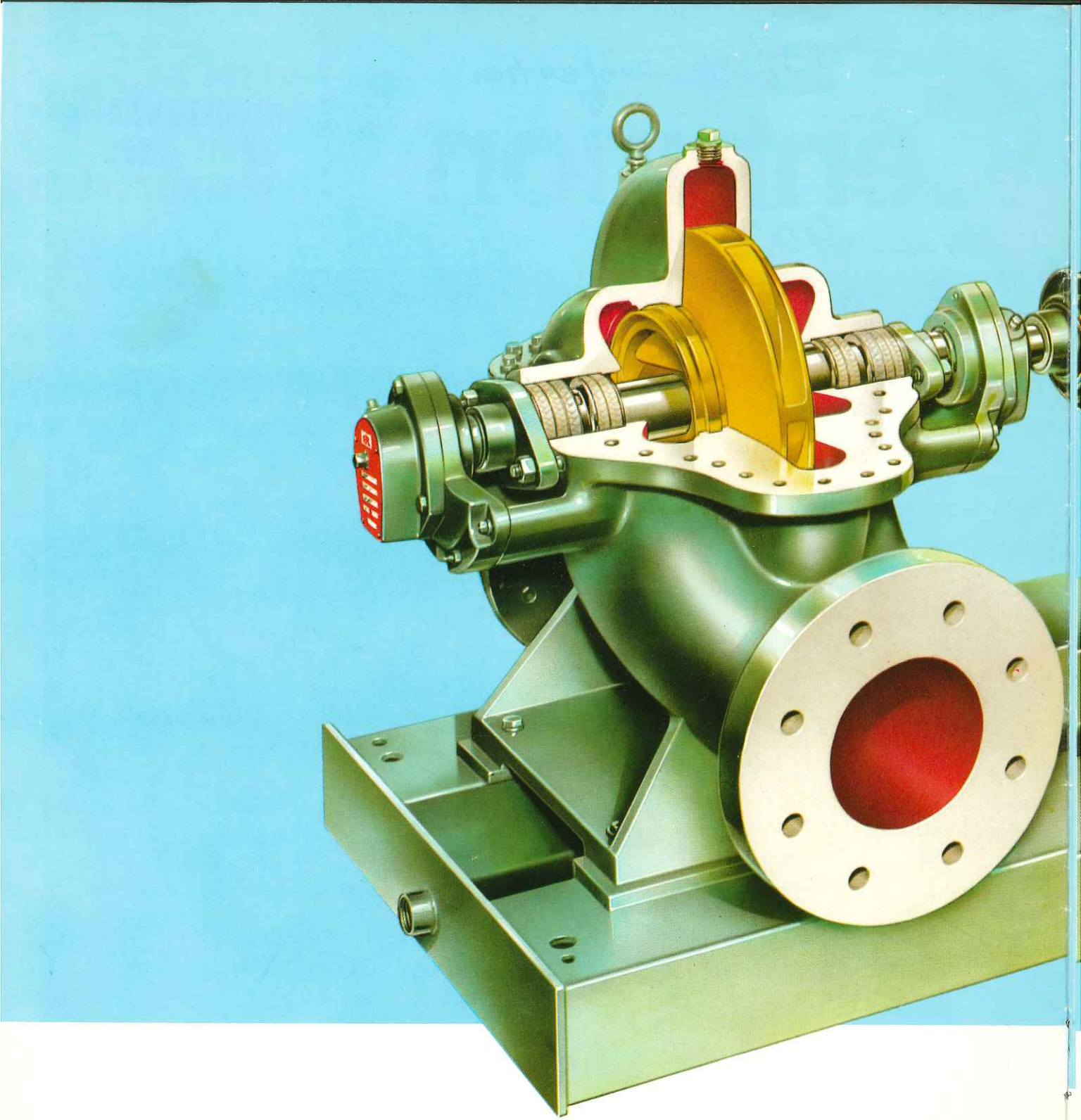
902

415
~~Digest~~

## TYPE S HORIZONTAL SPLIT-CASE CENTRIFUGAL PUM

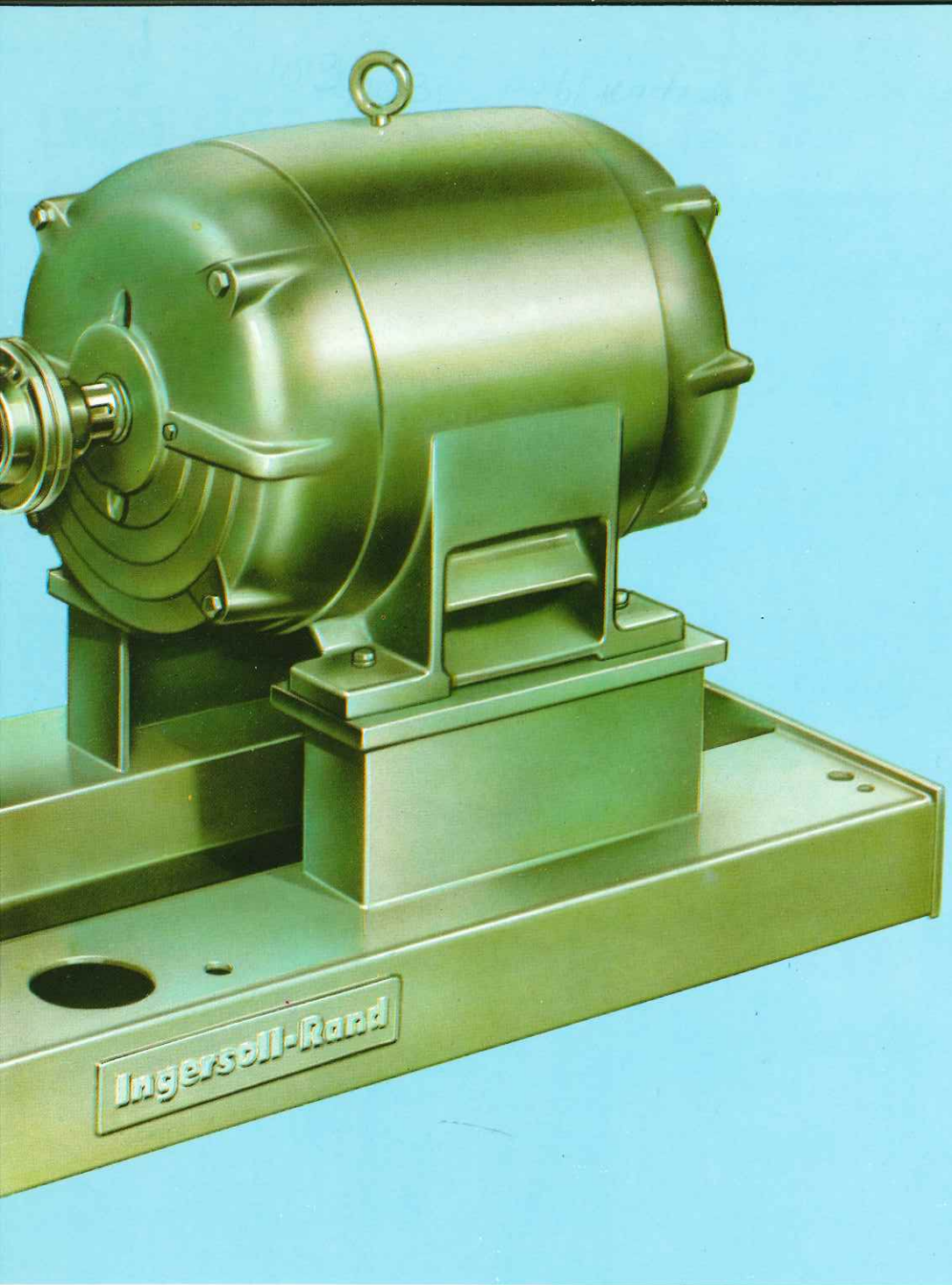


Ingersoll-Rand



# The Centurion . . .

**it may look like other pumps . . .**
**but it isn't**

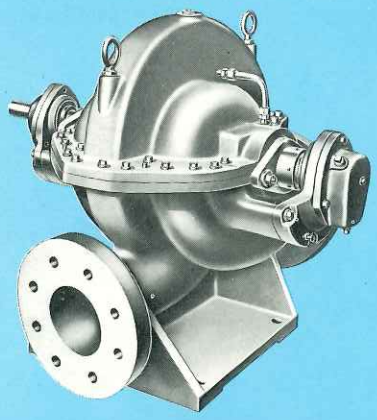



At first glance, the Type S Centurion pump may look like any other horizontal split case pump. However, a close look inside will show how special attention devoted to design of casing, shaft, shaft sleeves, bearings, bearing supports and other parts makes Centurion pumps different . . . a leader among pumps. These differences mean longer life of all parts, less downtime, lower maintenance and high efficiency in a pump you can depend on.

Our designers studied the many service requirements of modern general service pumps; higher operating pressures for such jobs as elevating liquids in high rise buildings, dependability for continuous operation in process applications, high efficiency for economical operation, low attendance and maintenance on any service. They drew on Cameron Pump Division's more than 100 years experience in the design and manufacture of hydraulic pumping equipment to develop a pump . . . the Centurion . . . rugged, dependable, efficient . . . which meets all requirements. The resulting extra-value features of Centurion pumps are presented in the following pages.

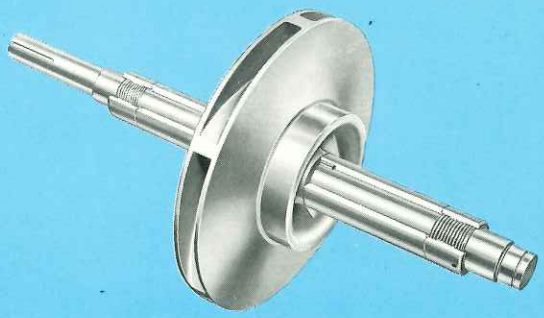
There are more than 20 sizes of Centurion pumps, blanketing the capacity range up to 7000 gpm, heads to 500 feet as shown on pages 6 to 9. Materials to handle a wide variety of liquids are available as indicated on page 14.

# Only the Centurion



Casings are designed for 250 psig working pressure allowing you to use this standard pump for many applications previously requiring special heavy casings.

Hydrostatic test of each casing to 375 psig is standard and assures safe operation at high pressures.

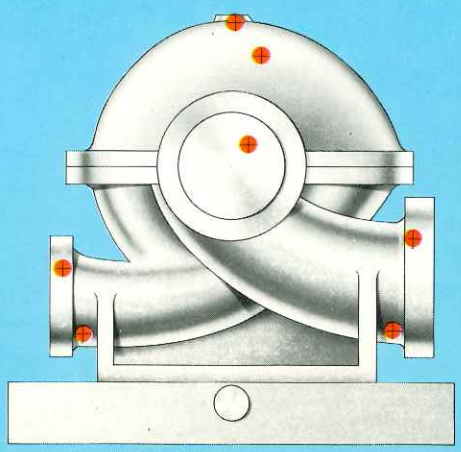


**2** Large diameter shafts with minimum bearing span keep shaft deflections low. As a result, packing wear is low, bearing loads are minimized, running fits stay true and maintenance is kept to a minimum.

Renewable casing rings on all Centurion pumps take casing wear, permit low cost replacement at design clearances.

**6** Impeller rings can be supplied with a new pump or added later.

Stuffing box bushings protect casing from wear and are easy to replace.

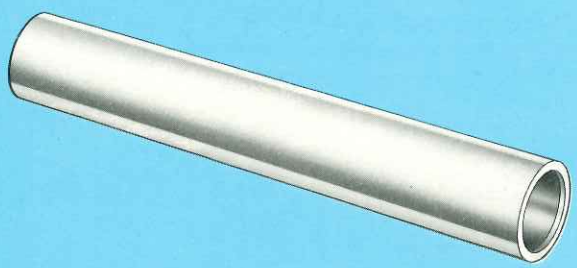


**10** All vent and gage connections are drilled, tapped and plugged at the factory, ready for any piping arrangements you require.

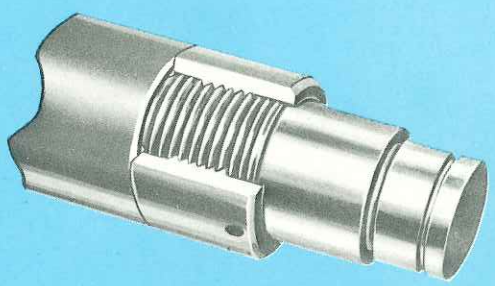
# gives you these outstanding features

**3** Pre-lubricated grease bearings are selected in sizes to give long life under the toughest conditions of radial load. Oil lubricated bearings are optional at no extra cost.

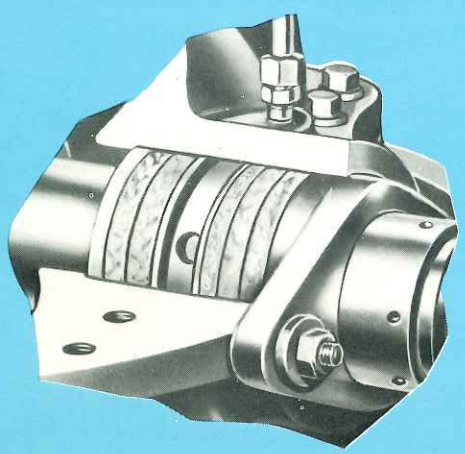
**4** Bearing housings are flanged and doweled for easy removal and accurate rotor alignment on reassembly.



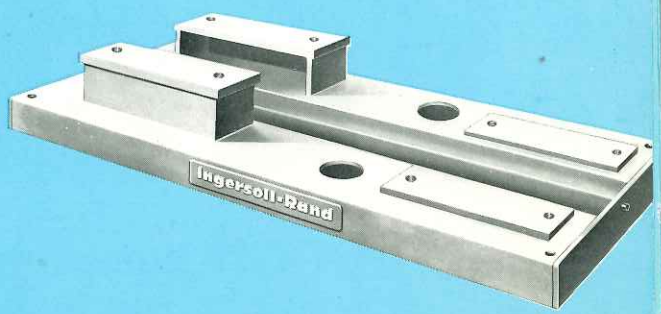
**7** Tubular shaft sleeves are keyed to the shaft, protecting the shaft from wear and corrosion. O-ring seals prevent leakage under the sleeves.



**8** Shaft sleeve removal is easy because sleeves are clamped by threaded sleeve nuts located outside the ing box.

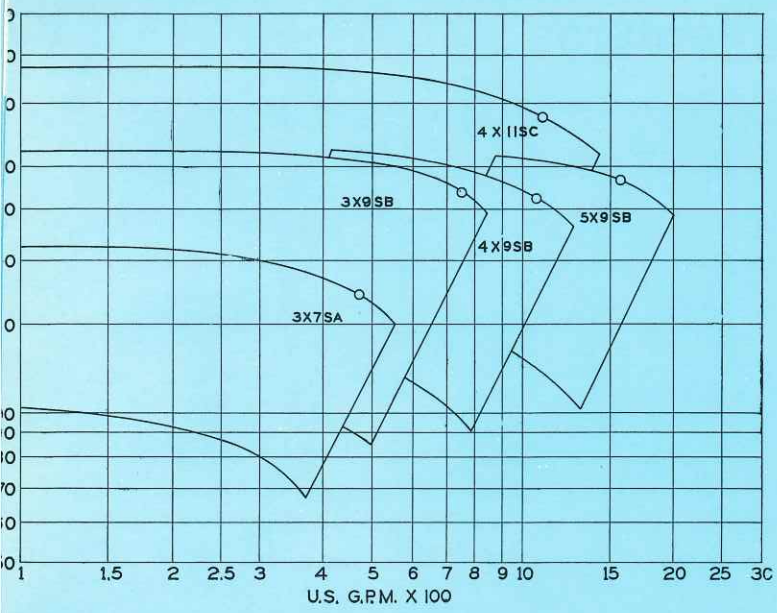


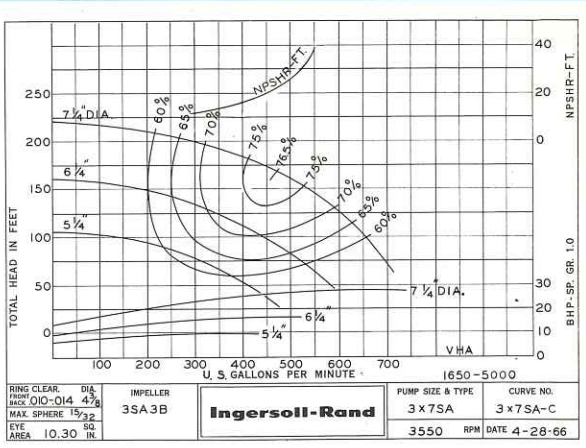
**11** Stuffing boxes are deep to accept five rings of packing and a seal cage or single or double mechanical seals.

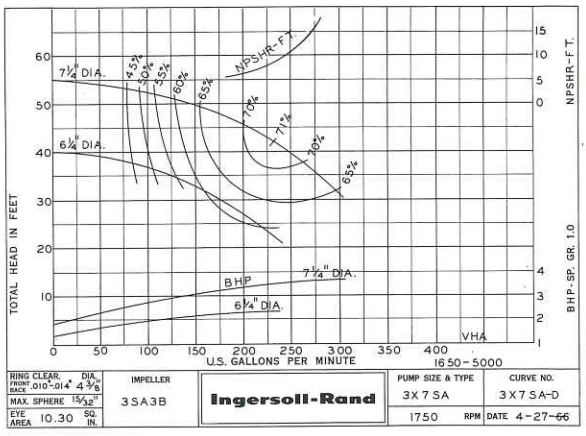



**12** The bent-form baseplate provides a rigid support for pu and motor. Multiple grout holes assure complete filling

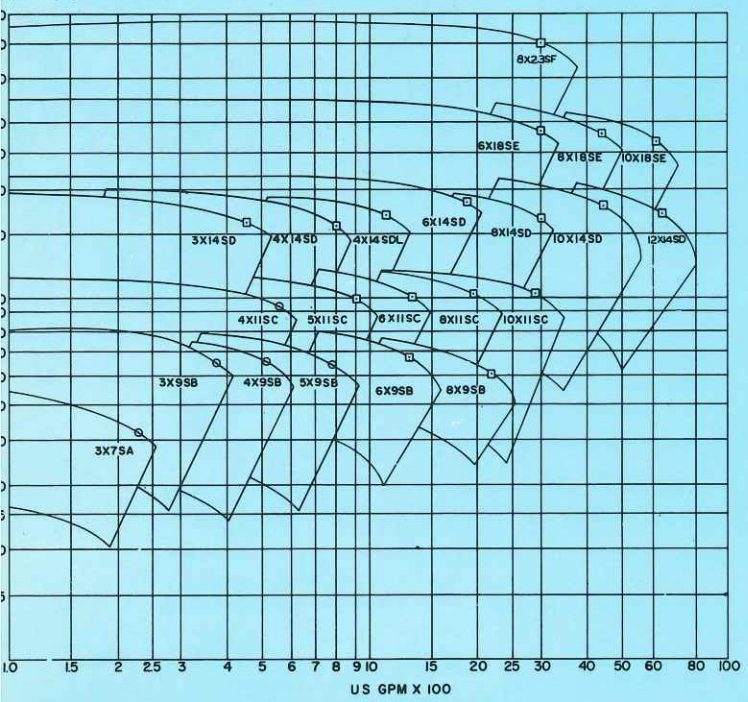
## MP COVERAGE — 3550 RPM

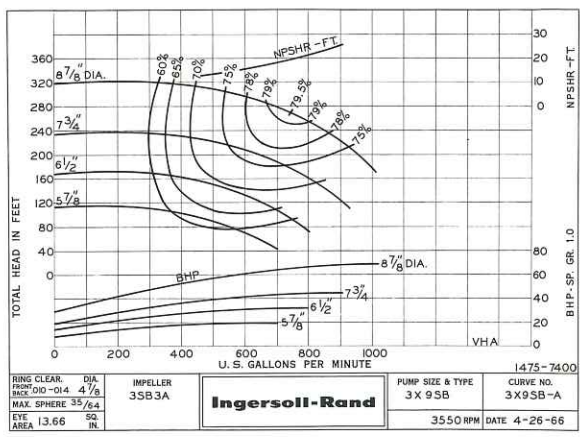



## MP COVERAGE — 1750 RPM



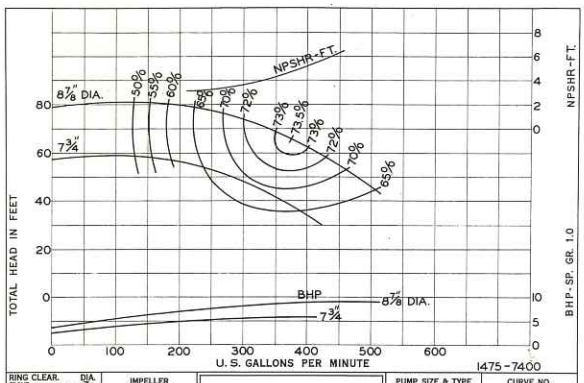




# Centurion pumps are built in more than 20 sizes

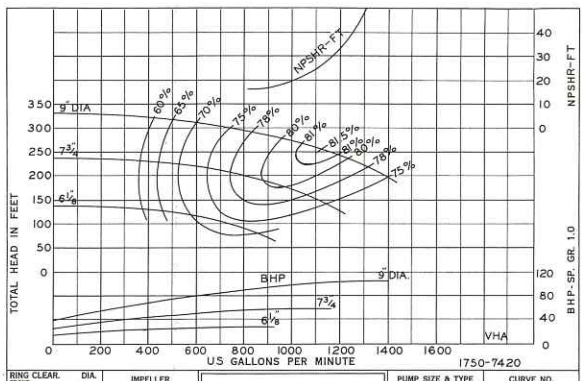
These range charts and performance curves show the extensive hydraulic coverage which the Centurion pump line provides . . . with capacities to 7000 gpm and heads to 500 feet. Plot your head and capacity requirements here to see how closely a Centurion pump selection fits your needs.

Centurion pumps also fill requirements for reliable performance, low attendance and minimum maintenance, and will maintain their initial hydraulic efficiency for years.

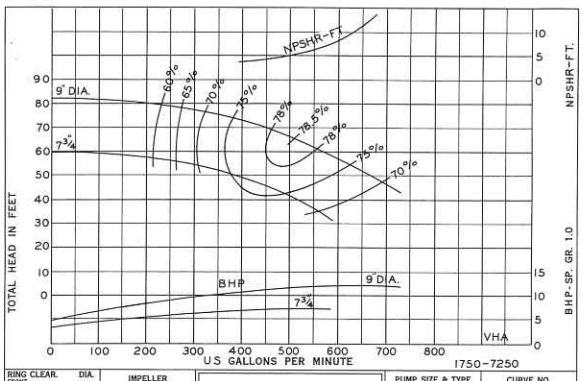
# PERFORMANCE



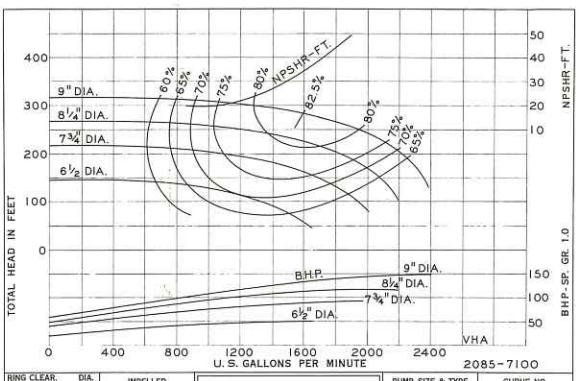

| RING CLEAR. DIA. FRONT 4⅞ BACK .010-.014 | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 35/64 | 3SB3A | | 3X9SB | 3X9SB-B |
| EYE AREA 13.66 SQ. IN. | | | 1750 RPM | DATE 4-26-66 |



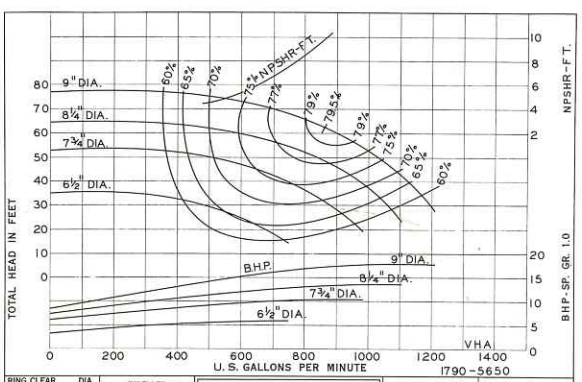

| RING CLEAR. DIA. FRONT BACK .010-.014 5½ | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 21/32 | 4SB3A | | 4X9 SB | 4X9 SB-A |
| EYE AREA 18.85 SQ. IN. | | | 3550 RPM | DATE 4-28-66 |



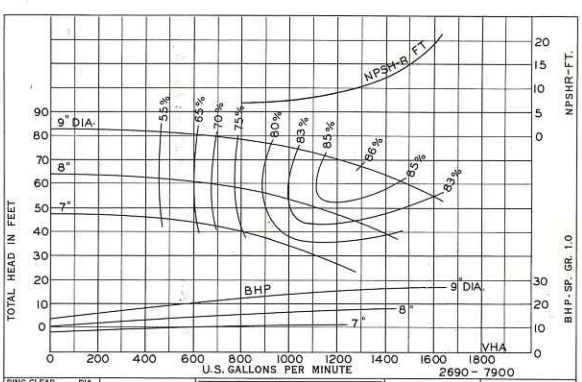

| RING CLEAR. DIA. FRONT BACK .010-.014 5½ | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 21/32 | 4SB3A | | 4X9SB | 4X9SB-B |
| EYE AREA 18.85 SQ. IN. | | | 1750 RPM | DATE 4-28-66 |



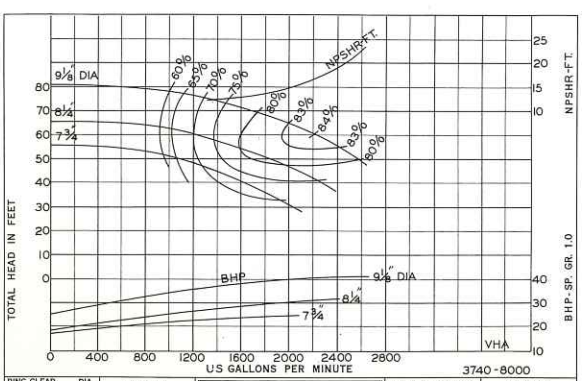

| RING CLEAR. DIA. FRONT BACK .010-.014 5⅞ | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 5/8" | 5SB3A | | 5X9 SB | 5X9SB-A |
| EYE AREA 23.8 SQ. IN. | | | 3550 RPM | DATE 3-29-66 |



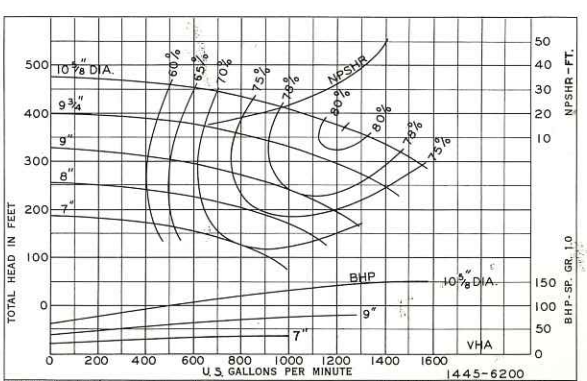

| RING CLEAR. DIA. FRONT BACK .010-.014 5⅞ | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 5/8" | 5SB3A | | 5X9 SB | 5X9SB-B |
| EYE AREA 23.8 SQ. IN. | | | 1750 RPM | DATE 3-29-66 |




| RING CLEAR. DIA. FRONT .010-.014 6⅝ BACK | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 25/32 | 6SB3A | | 6X9SB | 6X9SB-A |
| EYE AREA 34.97 SQ. IN. | | | 1750 RPM | DATE 6-1-66 |

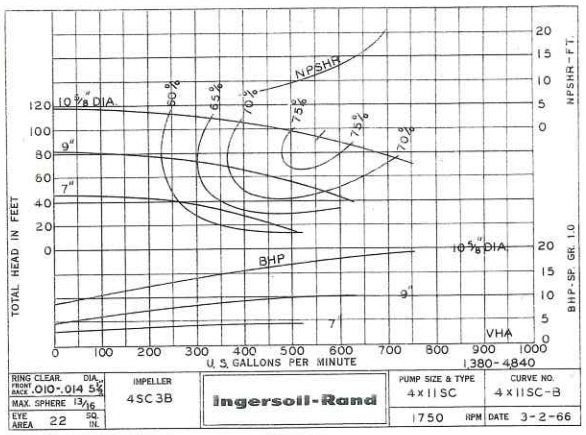


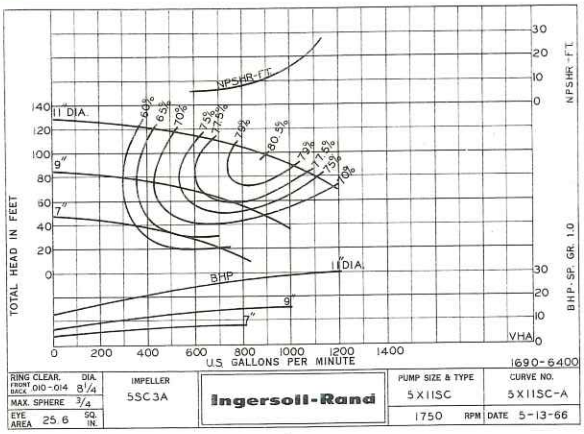

| RING CLEAR. DIA. FRONT BACK .010-.014 7½ | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 29/32 | 8SB3A | | 8X9SB | 8X9SB-A |
| EYE AREA 46.73 SQ. IN. | | | 1750 RPM | DATE 5-3-66 |

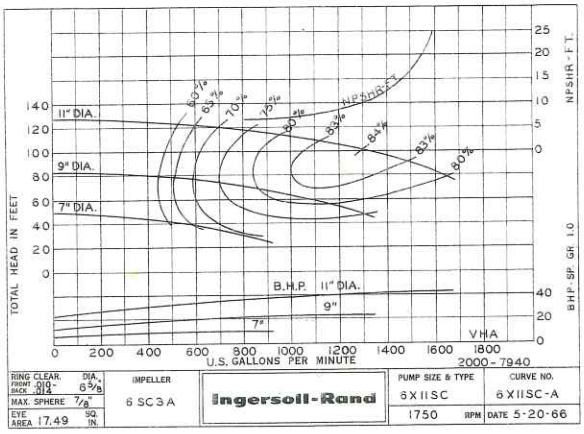


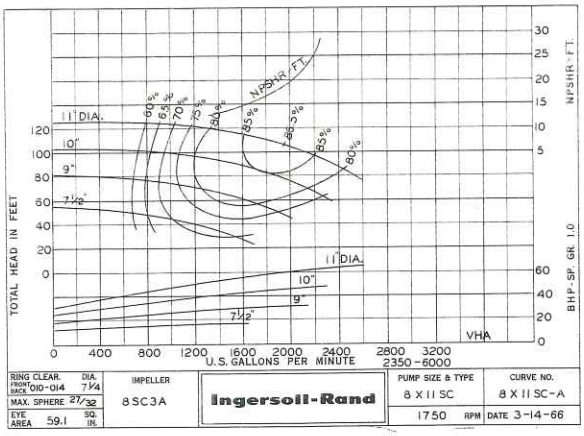

| RING CLEAR. DIA. FRONT .010-.014 5½ BACK | IMPELLER | Ingersoll-Rand | PUMP SIZE & TYPE | CURVE NO. |
|---|---|---|---|---|
| MAX. SPHERE 13/16 | 4SC3B | | 4X11SC | 4X11SC-A |
| EYE AREA 22 SQ. IN. | | | 3550 RPM | DATE 3-2-66 |

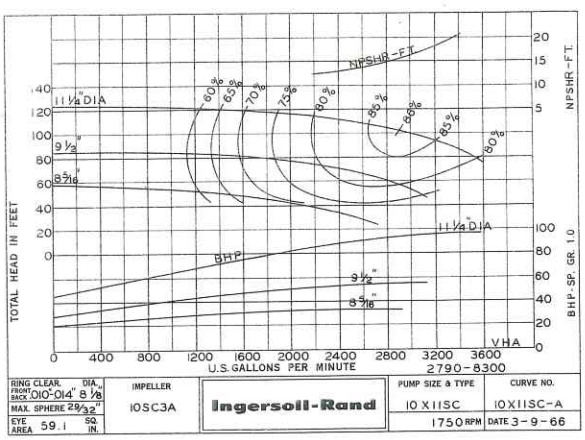
# PERFORMANCE

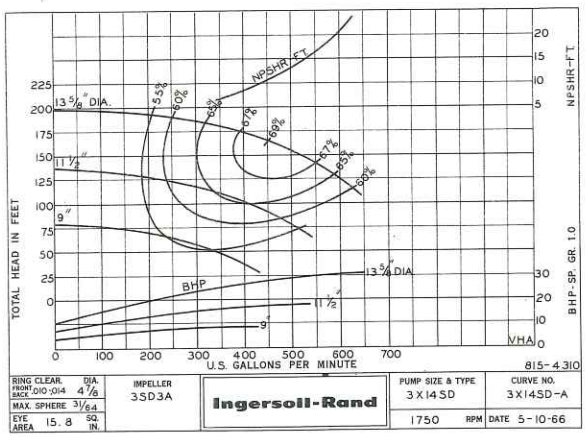


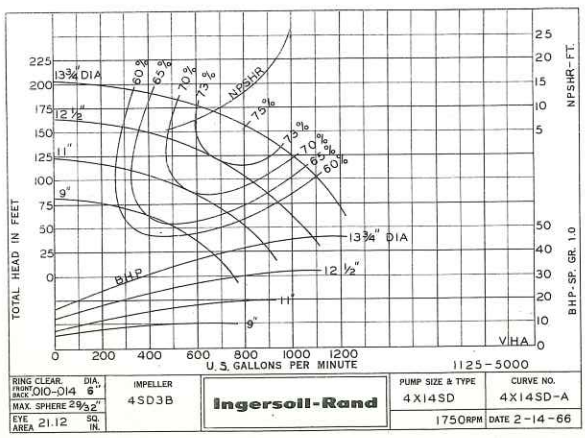



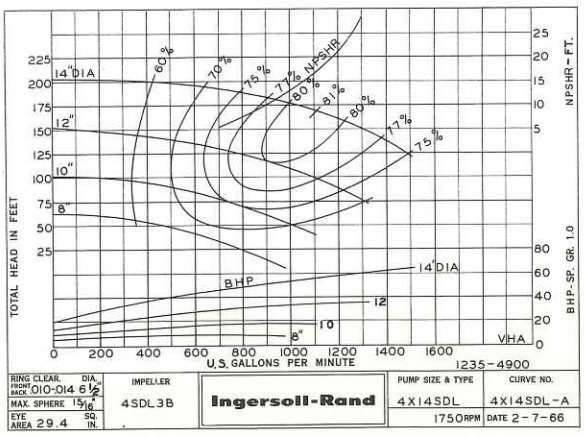



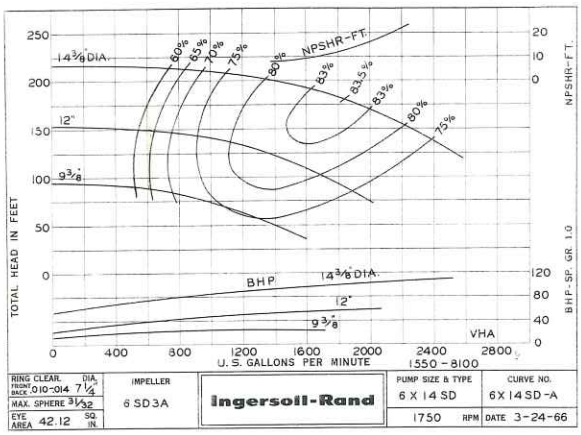



# PERFORMANCE

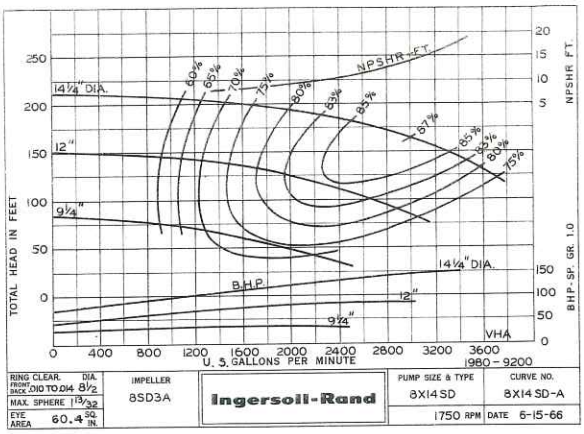



| RING CLEAR. DIA. FRONT .010-014 BACK .010-014 | 7 1/4 |
|---|---|
| MAX. SPHERE | 3 1/32 |
| EYE AREA | 42.12 SQ. IN. |

| IMPELLER |
|---|
| 6 SD 3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 6 X 14 SD | 6 X 14 SD-A |
| 1750 RPM | DATE 3-24-66 |

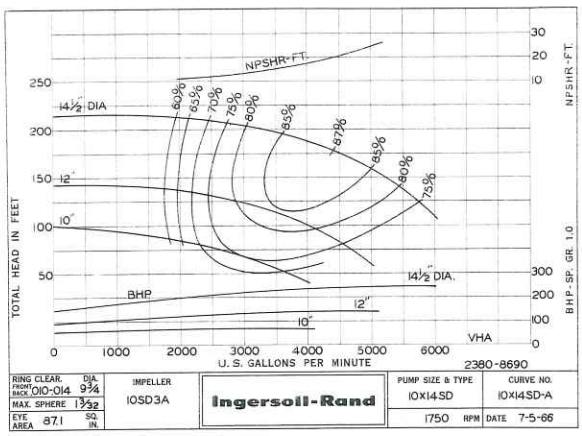



| RING CLEAR. DIA. FRONT .010 TO .014 BACK .014 | 8 1/2 |
|---|---|
| MAX. SPHERE | 1 3/32 |
| EYE AREA | 60.4 SQ. IN. |

| IMPELLER |
|---|
| 8SD3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 8X14 SD | 8X14 SD-A |
| 1750 RPM | DATE 6-15-66 |

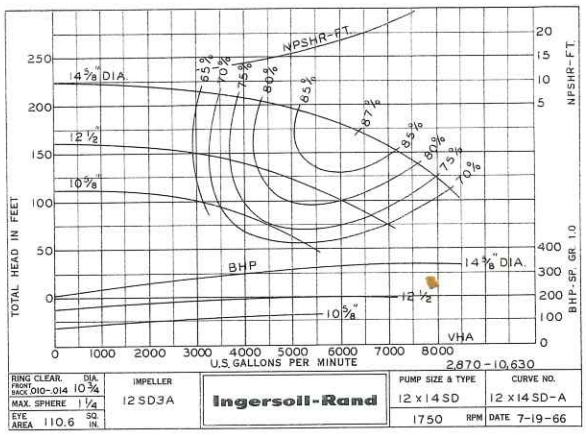



| RING CLEAR. DIA. FRONT .010-014 BACK | 9 3/4 |
|---|---|
| MAX. SPHERE | 1 3/32 |
| EYE AREA | 87.1 SQ. IN. |

| IMPELLER |
|---|
| 10SD3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 10X14SD | 10X14SD-A |
| 1750 RPM | DATE 7-5-66 |

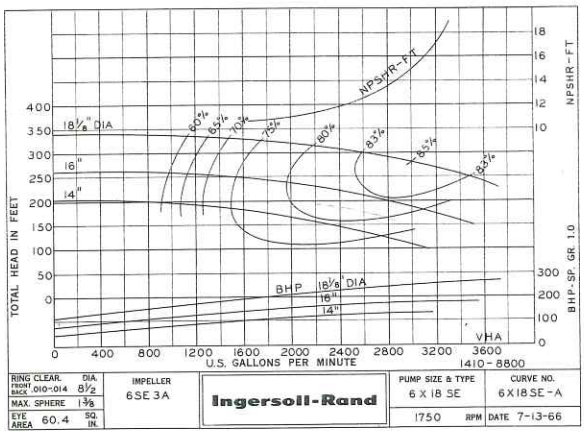



| RING CLEAR. DIA. FRONT BACK .010-014 | 10 3/4 |
|---|---|
| MAX. SPHERE | 1 1/4 |
| EYE AREA | 110.6 SQ. IN. |

| IMPELLER |
|---|
| 12 SD3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 12 x 14 SD | 12 x 14 SD-A |
| 1750 RPM | DATE 7-19-66 |

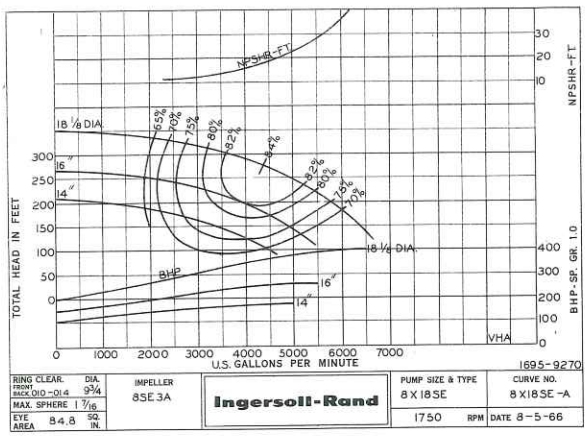



| RING CLEAR. DIA. FRONT BACK .010-014 | 8 1/2 |
|---|---|
| MAX. SPHERE | 1 3/8 |
| EYE AREA | 60.4 SQ. IN. |

| IMPELLER |
|---|
| 6SE 3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 6 X 18 SE | 6X18SE-A |
| 1750 RPM | DATE 7-13-66 |

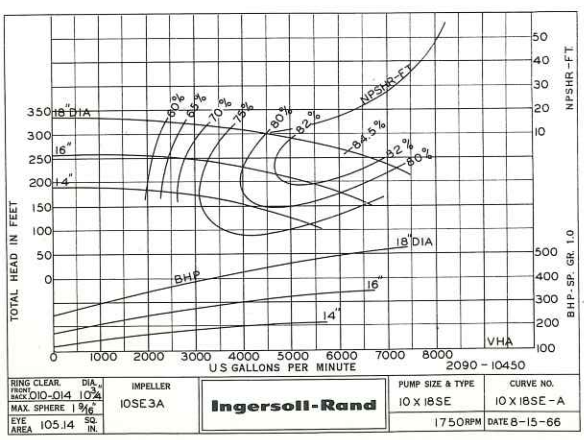



| RING CLEAR. DIA. FRONT BACK .010-014 | 9 3/4 |
|---|---|
| MAX. SPHERE | 1 7/16 |
| EYE AREA | 84.8 SQ. IN. |

| IMPELLER |
|---|
| 8SE3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 8X18SE | 8X18SE-A |
| 1750 RPM | DATE 8-5-66 |

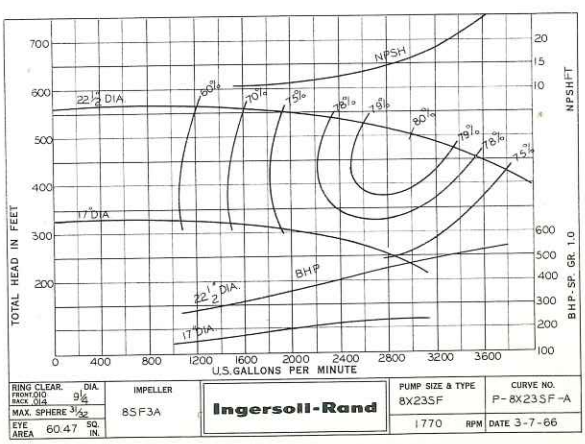



| RING CLEAR. DIA. FRONT BACK .010-014 | 10 3/4 |
|---|---|
| MAX. SPHERE | 1 9/16 |
| EYE AREA | 105.14 SQ. IN. |

| IMPELLER |
|---|
| 10SE3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 10 X 18SE | 10 X 18SE-A |
| 1750RPM | DATE 8-15-66 |

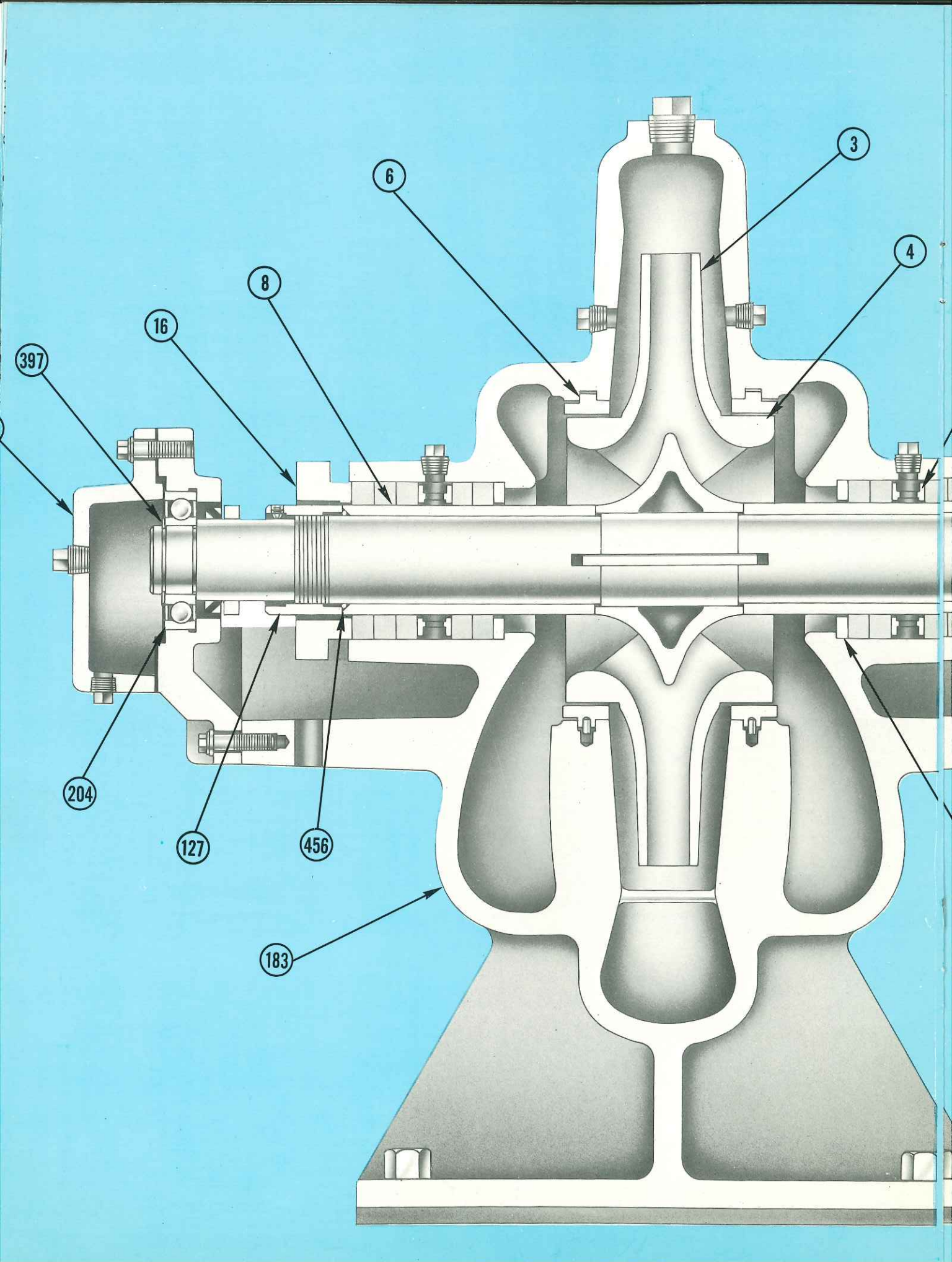



| RING CLEAR. DIA. FRONT .010 BACK .014 | 9 1/8 |
|---|---|
| MAX. SPHERE | 1 31/32 |
| EYE AREA | 60.47 SQ. IN. |

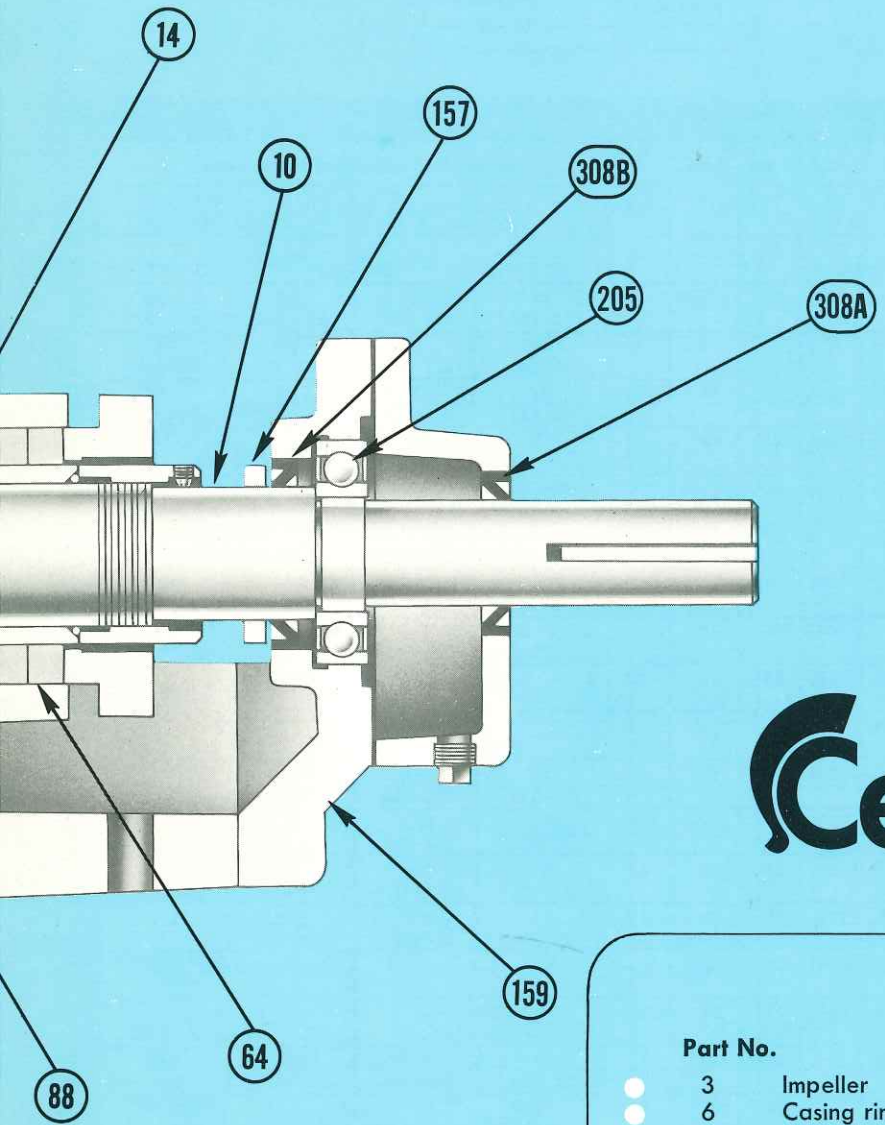
| IMPELLER |
|---|
| 8SF3A |

Ingersoll-Rand

| PUMP SIZE & TYPE | CURVE NO. |
|---|---|
| 8X23SF | P-8X23SF-A |
| 1770 RPM | DATE 3-7-66 |


3
6
4
8
16
397
204
127
456
183

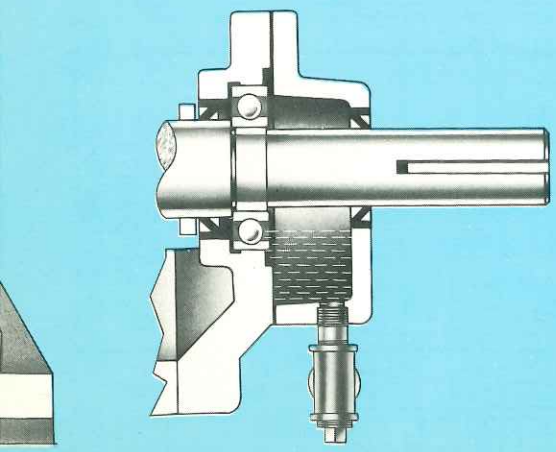
Ingersoll-Rand




# Centurion

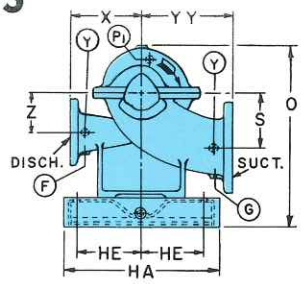
## Parts List

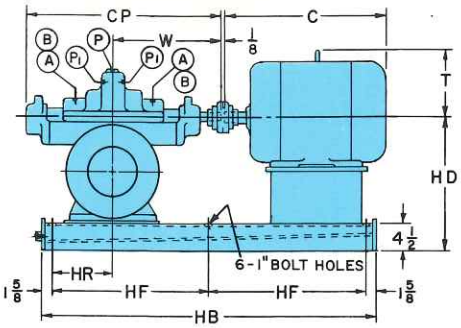
| Part No. | Name of part |
|---|---|
| 3 | Impeller |
| 6 | Casing ring |
| 8 | Shaft sleeve |
| 10 | Shaft |
| 14 | Seal cage (when specified) |
| 16 | Gland (not furnished when using mechanical seal) |
| 64 | Packing, stuffing box (not furnished when using mechanical seal) |
| 127 | Shaft sleeve nut |
| 4 | Impeller ring (when specified) |
| 159 | Bearing housing |
| 160 | Bearing end cover |
| 183 | Casing complete |
| 204 | Ball bearing (thrust) |
| 205 | Ball bearing (radial) |
| 308A | Seal ring |
| 308B | Seal ring |
| 397 | Snap ring |
| 88 | Stuffing box bushing (not furnished with mechanical seal) |
| 456 | O-ring |
| 157 | Flinger |



Constant level oil lubrication of bearings is optional at no extra cost.

# IMENSIONS




## PUMP DATA

| PUMP | Weight | Suction | Disc. | O | S | W | X | Z | CP | HD | YY | HR | Baseplate Number for Motor Frame |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3X7SA | 237 | 4 | 3 | 22 | 6 | 16⅛ | 9 | 4 13/16 | 29 | 16½ | 11 | 8 | 2P 213–256 \| 3P 284–286 |
| 3X9SB | 313 | 5 | 3 | 24¾ | 6½ | 16⅛ | 9 | 6 | 29 | 18 | 11½ | 8 | 2P 213–256 \| 3P 284–286 \| 8P 324–365 |
| 4X9SB | 405 | 6 | 4 | 26⅜ | 7 | 17 1/16 | 11 | 6¼ | 30⅞ | 19 | 12½ | 9 | 2P 213–215 \| 3P 254–286 \| 8P 324–365 \| 9P 404–405 |
| 5X9SB | 528 | 8 | 5 | 29⅝ | 9 | 17⅞ | 11¾ | 6⅝ | 32¼ | 22 | 15 | 10 | 3P 254–286 \| 8P 324–326 \| 10P 364–365 \| 23P 444–445 |
| 6X9SB | 640 | 8 | 6 | 30½ | 9 | 18 7/16 | 12 | 7½ | 33⅝ | 22 | 16 | 10 | 2P 213–215 \| 3P 254–256 \| 8P 284–286 \| 9P 324–326 |
| 8X9SB | 854 | 10 | 8 | 32⅛ | 10 | 21 5/16 | 14 | 8⅛ | 39⅛ | 25 | 18 | 13 | 8P 213–215 \| 9P 254–326 |
| 4X11SC | 452 | 6 | 4 | 28¼ | 7⅛ | 17⅛ | 12½ | 7⅛ | 30¾ | 20 | 13½ | 10 | 2P 213–215 \| 3P 254–286 \| 8P 324–326 \| 9P 364–365 \| 10P 404–405 \| 23P 444–445 |
| 5X11SC | 566 | 8 | 5 | 30⅛ | 9 | 18 7/16 | 14 | 7½ | 33⅝ | 22 | 15 | 10 | 2P 213–215 \| 3P 254–256 \| 8P 284–286 \| 9P 324–326 |
| 6X11SC | 678 | 8 | 6 | 31⅛ | 9 | 18 7/16 | 13 | 8¼ | 33⅝ | 22 | 16 | 10 | 2P 213–215 \| 3P 254–256 \| 8P 284–286 \| 9P 324–326 |
| 8X11SC | 877 | 10 | 8 | 35 | 10½ | 20⅛ | 16 | 9 | 36¾ | 25 | 18 | 12 | 8P 213–256 \| 9P 284–326 \| 10P 364–365 |
| 0X11SC | 1175 | 12 | 10 | 39⅞ | 12 | 21 5/16 | 22 | 9½ | 39⅛ | 29 | 21 | 13 | 23P 284–405 |
| 3X14SD | 460 | 5 | 3 | 26½ | 6½ | 17 1/16 | 12½ | 8⅛ | 30⅞ | 18 | 13½ | 8 | 2P 213–215 \| 3P 254–286 |
| 4X14SD | 545 | 6 | 4 | 29½ | 7½ | 17⅛ | 12 | 8 11/16 | 30¾ | 20 | 15 | 10 | 2P 213–215 \| 3P 254–286 \| 8P 324–326 \| 9P 364–365 |
| 4X14SDL | 637 | 6 | 4 | 30 | 8 | 17⅛ | 12 | 9 3/16 | 30¾ | 20 | 16 | 10 | 2P 213–215 \| 3P 254–286 \| 8P 324–326 \| 9P 364–365 |
| 5X14SD | 931 | 10 | 6 | 36 | 10 | 20⅛ | 15 | 10⅛ | 36¾ | 25 | 19 | 12 | 8P 213–256 \| 9P 284–326 \| 10P 364–405 \| 23P 444–445 |
| 8X14SD | 1058 | 10 | 8 | 38¾ | 12 | 21 11/16 | 15 | 10¾ | 39⅛ | 27 | 20 | 12 | 9P 324–326 \| 10P 364–365 \| 23P 404–445 \| 24P 447 |
| 0X14SD | 1551 | 12 | 10 | 41¾ | 13 | 24 5/16 | 20 | 11½ | 44⅜ | 29 | 22 | 15 | 23P 364–405 \| 24P 444–447 |
| 2X14SD | 1892 | 14 | 12 | 45¾ | 14 | 24 5/16 | 22 | 12¾ | 44⅜ | 31 | 26 | 15 | 23P 364–405 \| 24P 444–447 |
| 5X18SE | 1349 | 10 | 6 | 40⅝ | 12 | 21 11/16 | 17 | 12¼ | 39⅛ | 27 | 20 | 12 | 9P 324–326 \| 10P 364–365 \| 23P 404–445 \| 24P 447 |
| 8X18SE | 1677 | 12 | 8 | 43 | 13 | 26 | 19 | 12½ | 46 | 29 | 22 | 14 | 23P 404–405 \| 24P 444–445 \| 25P 447 |
| 0X18SE | 2045 | 14 | 10 | 46¼ | 14 | 26 | 20 | 13½ | 46 | 31 | 26 | 14 | 24P 444–445 \| 25P 447 |
| 8X23SF | 2400 | 10 | 8 | 44¼ | 12 | 26 | 19 | 15½ | 46 | 29 | 27 | 14 | 24P 444–445 \| 25P 447 |

## MOTOR DATA

| FRAME | 213 | 215 | 254 | 256 | 284 | 286 | 324 | 326 | 364 | 365 | 404 | 405 | 444 | 445 | 447 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight* | 100 | 120 | 195 | 235 | 260 | 320 | 410 | 495 | 600 | 685 | 795 | 900 | 1250 | 1365 | 1700 |
| C* | 16 | 17½ | 20⅜ | 22⅜ | 23¾ | 25¼ | 26½ | 28 | 29¼ | 30¼ | 32⅝ | 34⅛ | 38 | 40 | 43⅜ |
| T* | 5⅜ | 5⅜ | 6⅜ | 6⅜ | 7 | 7 | 8 | 8 | 9¼ | 9¼ | 10¼ | 10¼ | 11¼ | 11¼ | 11¼ |

*Based on standard open motors. Dimensions will vary with make and type of motor.

## BASEPLATE DATA

| Base No. | Weight | HA | HB | HE | HF |
|---|---|---|---|---|---|
| 2P | 180 | 19 | 48¾ | 7½ | 22¾ |
| 3P | 210 | 19 | 54¾ | 7½ | 25¾ |
| 8P | 335 | 25½ | 54¾ | 10½ | 25¾ |
| 9P | 350 | 25½ | 60¾ | 10½ | 28¾ |

| Base No. | Weight | HA | HB | HE | HF |
|---|---|---|---|---|---|
| 10P | 375 | 25½ | 66¾ | 10½ | 31¾ |
| 23P | 440 | 31½ | 72¾ | 13½ | 34¾ |
| 24P | 455 | 31½ | 78¾ | 13½ | 37¾ |
| 25P | 490 | 31½ | 84¾ | 13½ | 40¾ |

All dimensions in inches, weight in pounds

# MECHANICAL SPECIFICATIONS

| PUMP MODEL | Suction Size Inches | Discharge Size Inches | Coupling Size Min. – Max. | Shaft Diameter Under Coupling Inches | Shaft Diameter Under Sleeve Inches | Stuffing Box Depth, Inches | Packing Size Inches | Sleeve O. D. Inches | Max. Shaft Deflection at Stuffing Box | Minimum Bearing Life in Years | Wearing Ring Clearance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **3x7SA** | 4 | 3 | 30/50 | 1.125 | 1.5 | 3.250 | 7/16 | 2.0 | .002 | 20 | .010 |
| **3x9SB** | 5 | 3 | 30/70 | 1.125 | 1.5 | 3.250 | 7/16 | 2.0 | .001 | 10 | .010 |
| **4x9SB** | 6 | 4 | 30/90 | 1.125 | 1.5 | 3.250 | 7/16 | 2.0 | .001 | 12 | .010 |
| **5x9SB** | 8 | 5 | 40/90 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .001 | 9 | .010 |
| **6x9SB** | 8 | 6 | 30/50 | 1.125 | 1.5 | 3.250 | 7/16 | 2.0 | .002 | 20 | .010 |
| **8x9SB** | 10 | 8 | 40/60 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .001 | 9 | .010 |
| **4x11SC** | 6 | 4 | 60/90 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .001 | 20 | .010 |
| **5x11SC** | 8 | 5 | 30/60 | 1.125 | 1.5 | 3.250 | 7/16 | 2.0 | .001 | 20 | .010 |
| **6x11SC** | 8 | 6 | 30/60 | 1.125 | 1.5 | 3.250 | 7/16 | 2.0 | .002 | 20 | .010 |
| **8x11SC** | 10 | 8 | 40/70 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .002 | 20 | .010 |
| **10x11SC** | 12 | 10 | 50/80 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .002 | 11 | .010 |
| **3x14SD** | 5 | 3 | 30/50 | 1.125 | 1.5 | 3.250 | 7/16 | 2.0 | .001 | 20 | .010 |
| **4x14SD** | 5 | 4 | 40/60 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .002 | 20 | .010 |
| **4x14SDL** | 6 | 4 | 40/60 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .001 | 20 | .010 |
| **6x14SD** | 10 | 6 | 50/90 | 1.500 | 2.0 | 3.562 | ½ | 2.5 | .002 | 20 | .010 |
| **8x14SD** | 10 | 8 | 60/90 | 2.125 | 2.5 | 3.562 | ½ | 3.25 | .001 | 20 | .010 |
| **10x14SD** | 12 | 10 | 70/90 | 2.125 | 2.5 | 3.562 | ½ | 3.25 | .002 | 8 | .010 |
| **12x14SD** | 14 | 12 | 70/90 | 2.125 | 2.5 | 3.562 | ½ | 3.25 | .002 | 10 | .010 |
| **6x18SE** | 10 | 6 | 70/90 | 2.125 | 2.5 | 3.562 | ½ | 3.25 | .001 | 20 | .010 |
| **8x18SE** | 12 | 8 | 80/90 | 2.500 | 3.0 | 3.562 | ½ | 3.75 | .002 | 13 | .010 |
| **10x18SE** | 14 | 10 | 90/100 | 2.500 | 3.0 | 3.562 | ½ | 3.75 | .002 | 20 | .010 |

# MATERIALS — CENTURION PUMPS

| Type Construction | Standard Fitted | Bronze Fitted | All Bronze Acid Resistant | All Bronze |
|---|---|---|---|---|
| **Casing** | Iron | Iron | Bronze | Bronze |
| **Impeller** | Iron | Bronze | Bronze | Bronze |
| **Impeller Rings** | Steel | Bronze | Bronze | Bronze |
| **Casing Rings** | Iron | Iron | Bronze | Bronze |
| **Shaft Sleeves** | Steel | Bronze | Bronze | Bronze |
| **Shaft** | Steel | Steel | Steel | Steel |
| **Seal Cages** | Iron | Iron | Teflon | Teflon |
| **Glands** | Iron | Iron | Bronze | Bronze |
| **Gland Studs** | Steel | Steel | Steel | Steel |
| **Gland Nuts** | Steel | Steel | Steel | Steel |
| **Packing** | Asbestos | Asbestos | Asbestos | Asbestos |
| **Stuffing Box Bushing** | Steel | Steel | Bronze | Bronze |
| **Shaft Sleeve Nuts** | Steel | Bronze | Bronze | Bronze |
| **Shaft Sleeve "O" Ring** | Butyl | Butyl | Butyl | Butyl |
| **Bearing Bodies** | Iron | Iron | Iron | Iron |
| **Bolts** | Steel | Steel | Steel | Steel |
| **Gaskets** | Asbestos | Asbestos | Asbestos | Asbestos |

## materials to match a wide range of requirements

Each Centurion pump is assembled to your specific conditions from stock components. Other materials are supplied as shown above to equip each pump to handle the specified liquid.

# Architects and Engineers Specifications

for Standard Horizontally Split Case Pumps.

## General:

The pumps shall be centrifugal, single stage, horizontally split, volute type having double suction impellers all mounted on a rigid steel base.

## Construction:

**Casing:** High grade cast iron, split on the horizontal centerline shall be supplied. Suction and discharge nozzles and the pump feet are cast in the lower half. The casing shall be suitable for a minimum of 250 psig working pressure and hydrostatically tested to 375 psig.

**Shaft:** Rigid, extra heavy, high quality, heat-treated carbon steel shall be supplied. The first critical speed of the rotor shall be above 5000 rpm. Bronze tubular shaft sleeves keyed to the shaft shall be furnished. Shaft sleeves shall be locked in place by an external shaft sleeve nut. Shaft deflection at the stuffing box shall not exceed .002 inches.

**Impeller:** Cast iron or bronze double suction impeller shall be supplied. Casing wear rings shall be furnished. The impeller shall be hydraulically and statically balanced and keyed to the shaft.

**Bearings:** Prelubricated grease packed bearings having a minimum bearing life of 8 years and an average life of 40 years shall be supplied. Bearing housings shall be flanged and dowelled to bolt to the casing for positive alignment.

**Shaft Sleeve:** Shall be bronze tubular type and keyed to the shaft. "O" ring seals shall be provided to prevent leakage under the sleeve and the shaft sleeve nuts shall externally lock the sleeve in place.

**Stuffing Box:** Shall be packed with a minimum of five rings and a seal cage or mechanical seal. Renewable stuffing box bushings of steel shall be supplied.

**Coupling:** Falk model T flexible coupling shall be supplied.

**Baseplate:** Shall be a rigid fabricated steel unit having a positive sloping collection chamber to collect and drain any leakage from the pump.

**Motor:** Shall be a_____horsepower_____ RPM with class B insulation, 40 degree C rise, drip proof motor for 460 volts 3 phase 60 cycle current. New Nema frame motors are preferred.

Complete assembled pumping unit shall be supplied as listed above to meet the following service conditions:

No. of Units required . . . . . _____
Service . . . . . _____
Liquid . . . . . _____
Temperature . . . . . _____ °F
Specific Gravity . . . . . _____
Capacity Design . . . . . _____ GPM
Net Positive Suction Head Available . . . . . _____ Feet
Total Head Developed . . . . . _____ Feet
Maximum Speed . . . . . _____ RPM

Pump shall be Ingersoll-Rand Type S Centurion.

# Ingersoll-Rand

- Reciprocating compressors
- Centrifugal compressors and blowers
- Helical-rotor compressors
- Axial-flow compressors
- Packaged compressor plants
- Portable compressors
- Rock drilling equipment
- Air, electric and hand tools
- Air and electric hoists
- Centrifugal, mixed-flow and propeller pumps
- Reciprocating pumps
- Steam and hydraulic turbines
- Gas expanders
- Steam condensers
- Jet ejectors
- Vacuum equipment
- Specialized refrigeration machinery
- Mine hoists
- Barking drums
- Pulp and paper machinery
- Gas engines
- Diesel and steam engines for specialized services
- Specialized high-pressure equipment
- Automatic and remote control systems
- Plastic molding equipment and products
- Coal mining machinery
- Special ground support equipment and precision parts for aircraft, electronics and missile industries

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